

- 1) (9 pts) Write a program that will implement Simpson's rule for approximating a definite integral. Use your program to approximate the two integrals from Homework 19. For each problem, determine the value of  $n$  necessary to obtain a relative error less than  $10^{-6}$  (remember that you want to get close to the value of  $n$  that meets this criteria).

Compare the values of  $n$  you get from Simpson's rule to those you obtained from the trapezoidal rule and comment on any differences you observe.

- 2) (6 pts) Write a program that will implement the corrected trapezoidal method and repeat Problem 1 above. Compare the values of  $n$  you obtain with those from Simpson's rule and the trapezoidal method and comment on any differences you observe.

- 3) (12 pts, Due Oct. 27) Write the results of HW 19 and the two problems above as a formal technical report. Be sure to follow the guidelines in the Technical Report Guidelines handout on the course webpage. You may draw your sketches and equations by hand provided that you write neatly.